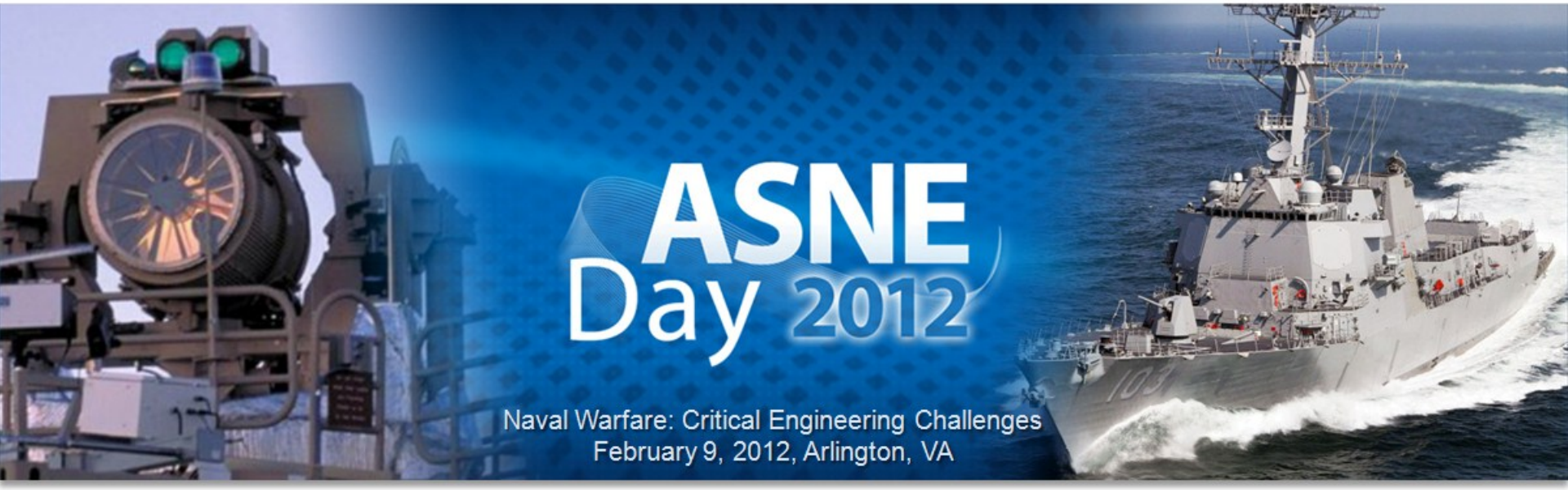
Hull, Mechanical, & Electrical (HM&E) Roadmap: Revolutionizing Naval Warfare and Achieving Energy Security



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Science & Technology Energy Project Lead
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NAVSEA
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HERREN

Honorable Ray Mabus
75th United States Secretary of the Navy

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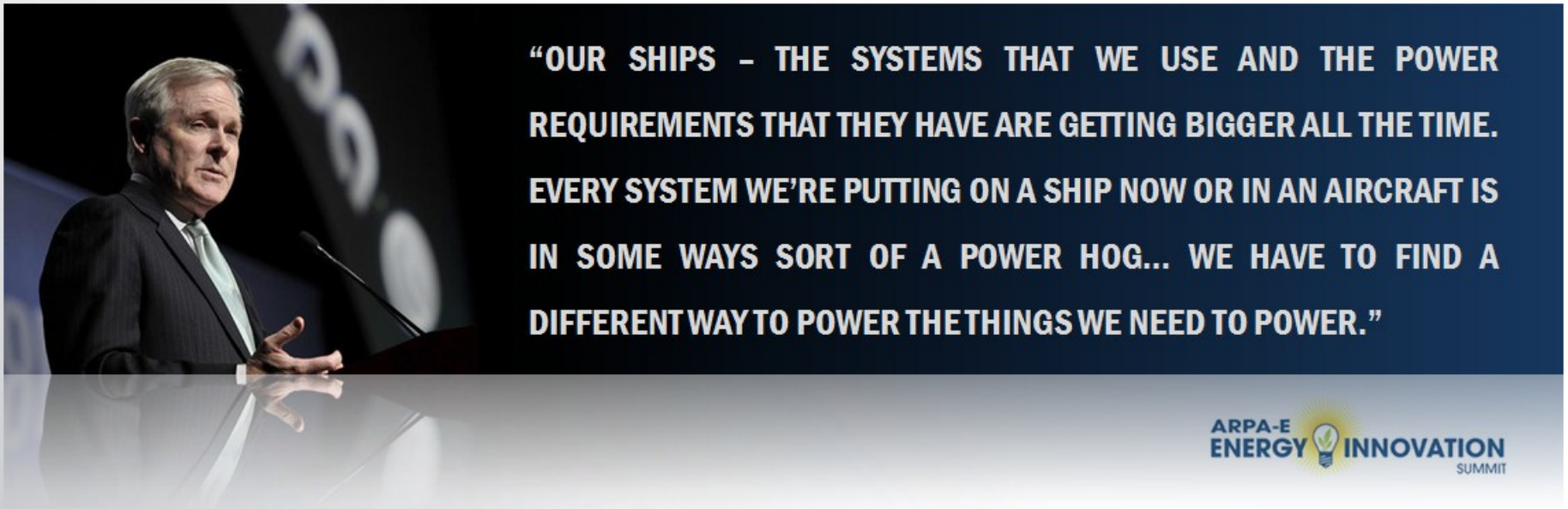

Fundamental Shift Required for In-Service and New Construction Programs

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HM&E Roadmap: Revolutionizing Naval Warfare and Achieving Energy Security

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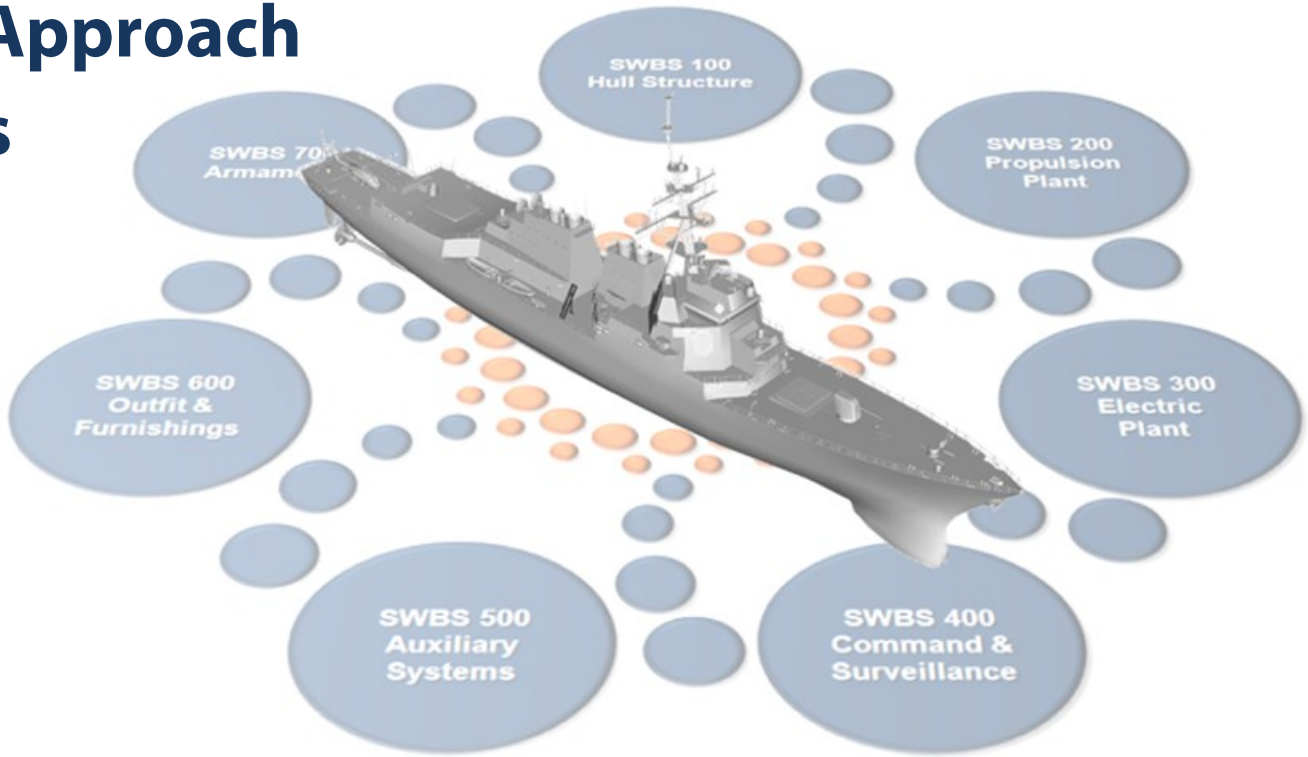
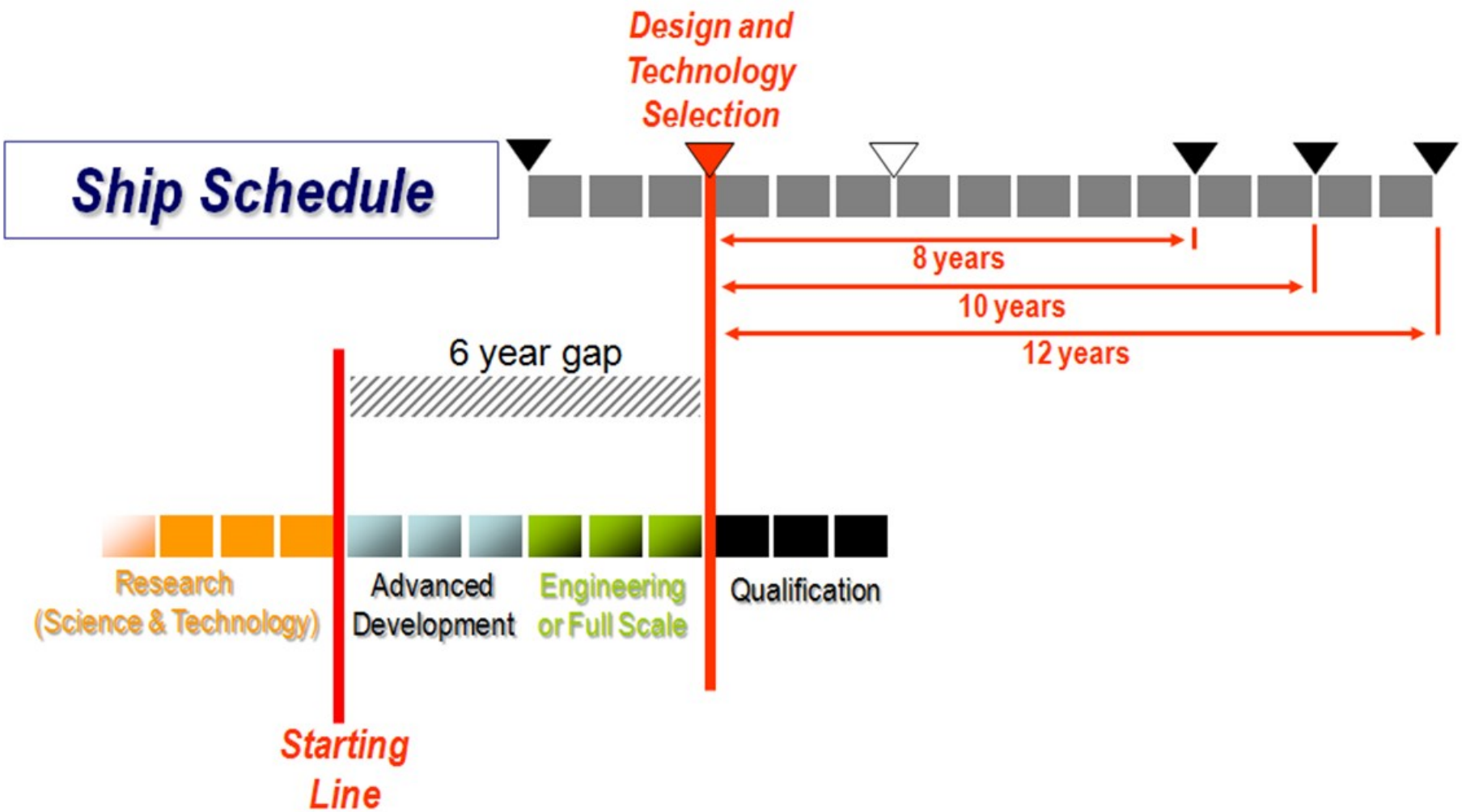
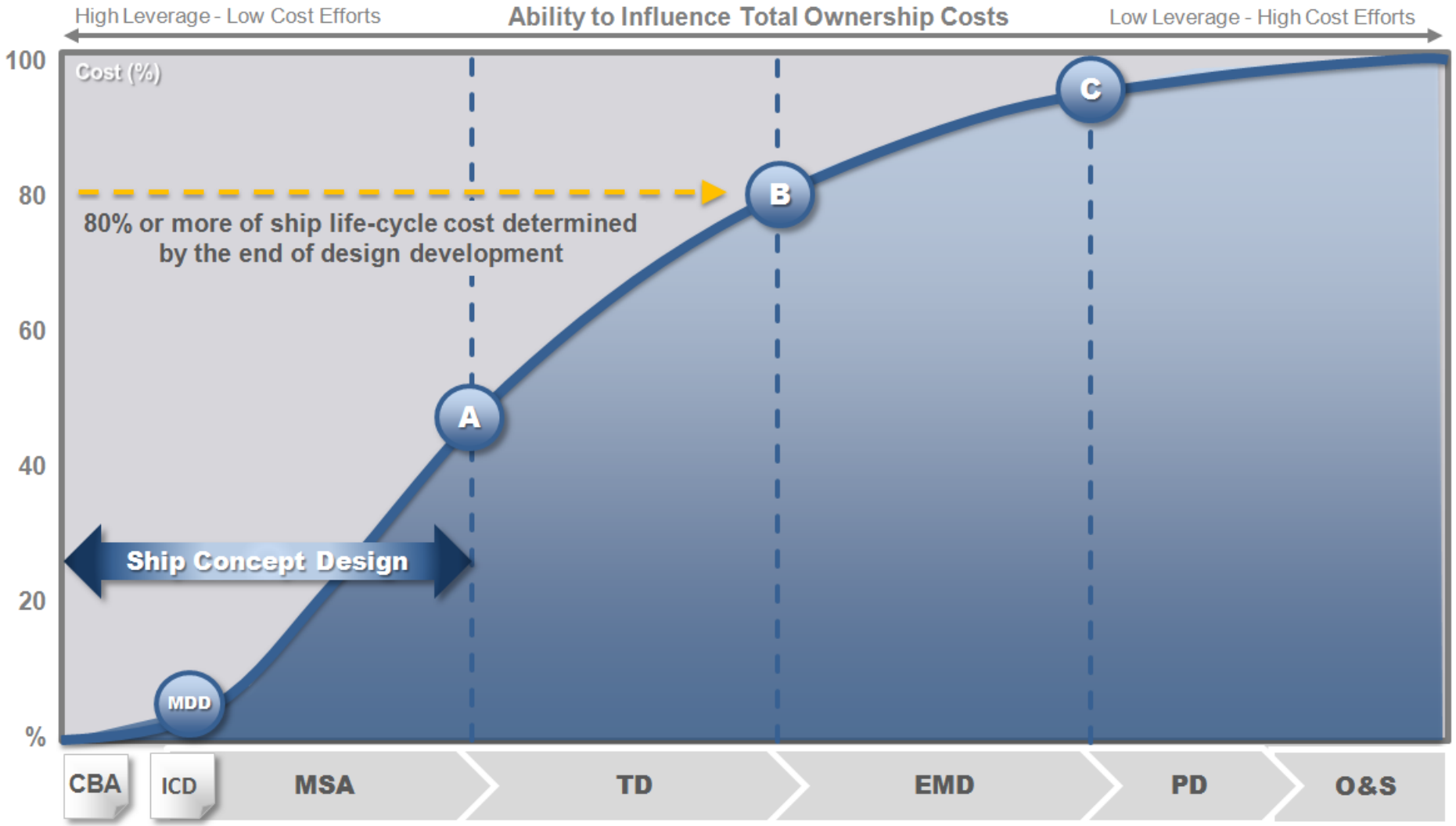
- Background
- Objective
- Purpose of Roadmap
- Proposed Approach
- Challenges
- Next Steps



Background: Notional Timeline



Background:
Ability to Influence Total Ownership Costs



Greatest ability to influence with lowest cost impact is during pre-Concept Design

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Objective:
HM&E Roadmap

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Develop a technology plan that is responsive to future threats & weapons capabilities, shipbuilding plans & schedules, current fleet opportunities, and budgetary realities

- Provides sufficient data to inform budget decisions for S&T, R&D, new acquisition/construction, and fleet insertion

Purpose:
HM&E Roadmap

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Provides a means of expressing HM&E needs and opportunities to resource sponsors, S&T/R&D organizations, ship/warfare systems program managers, and fleet activities

Resolves competing frameworks (future warfare requirements, life cycle costs, etc.) that foster short-term stovepipe approaches rather than long-term sustainable solutions

Serves as unifying document between organizations to address future challenges in full alignment

Provides a foundation for Industry and Government agencies to focus their resources

Purpose:
Energy As A Strategic Resource

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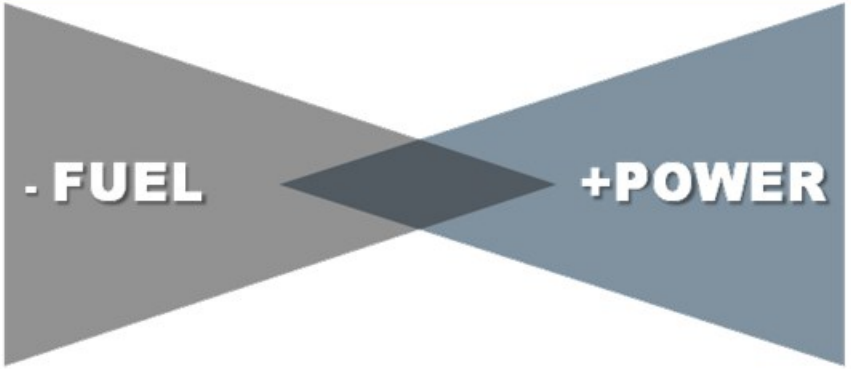
Enhanced National Security to meet Operational Requirements Globally



Reducing Warfighter Dependence On Vulnerable Fuel Supplies	Ensuring U.S. Forces Meet the Increasing Electric Power Demand
• Energy Efficient Acquisition • Existing Fleet Efficiencies • Diverse Energy Resources • Culture & Behavioral Changes	• Improved Situational Awareness • Longer Ranges; Deeper Magazines • Lower Collateral Damage • Insensitive Munitions

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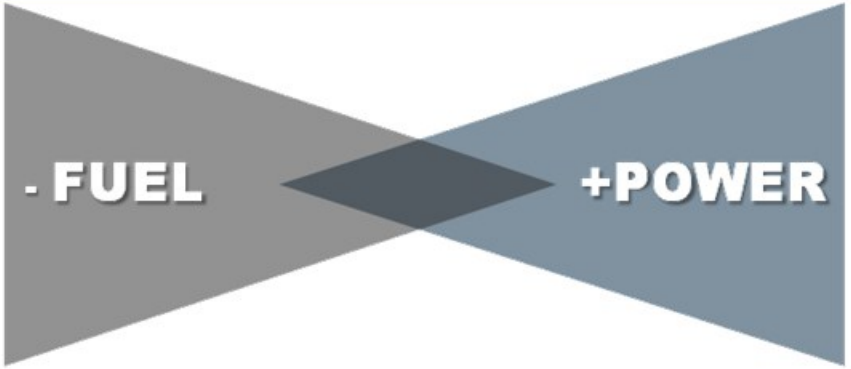

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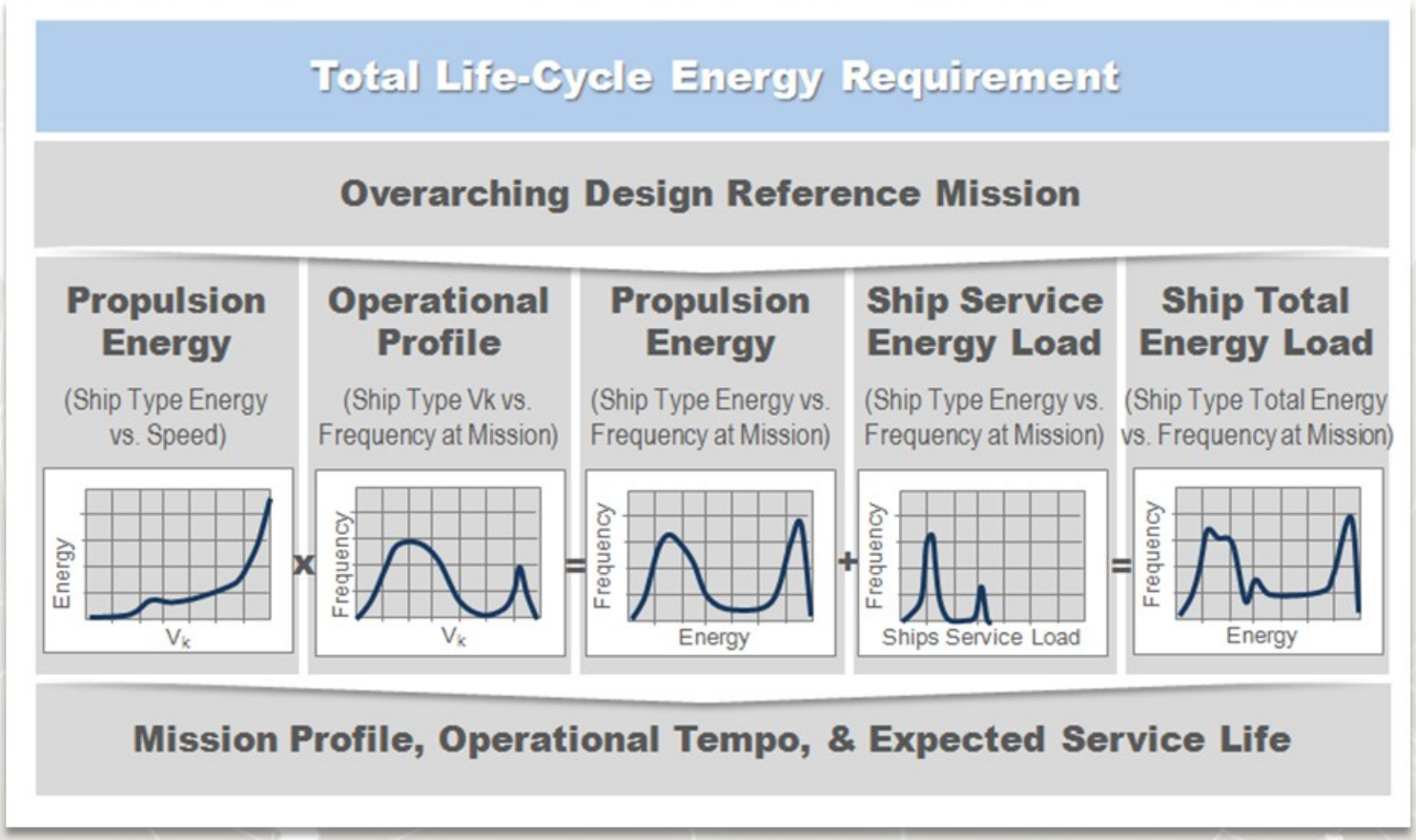
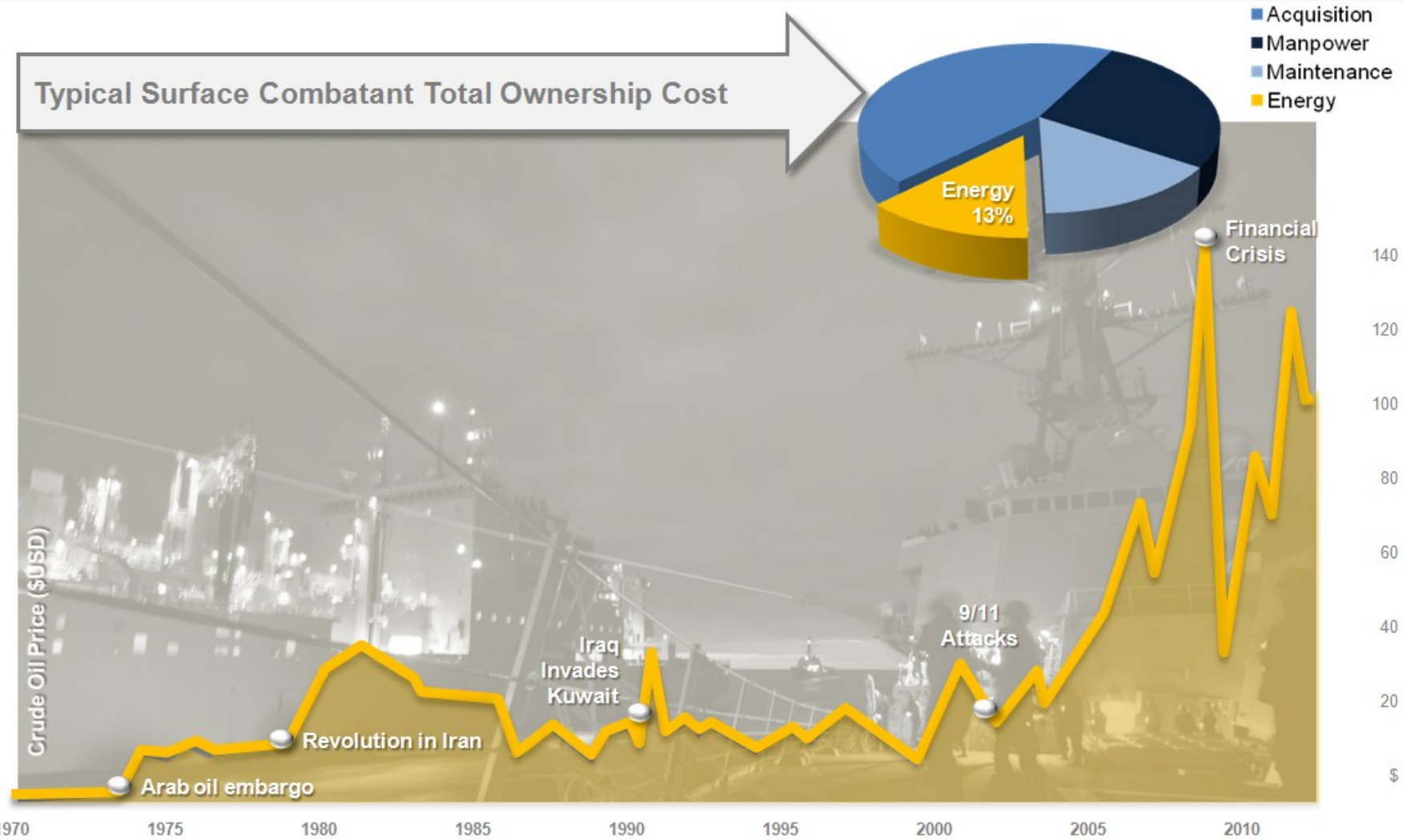
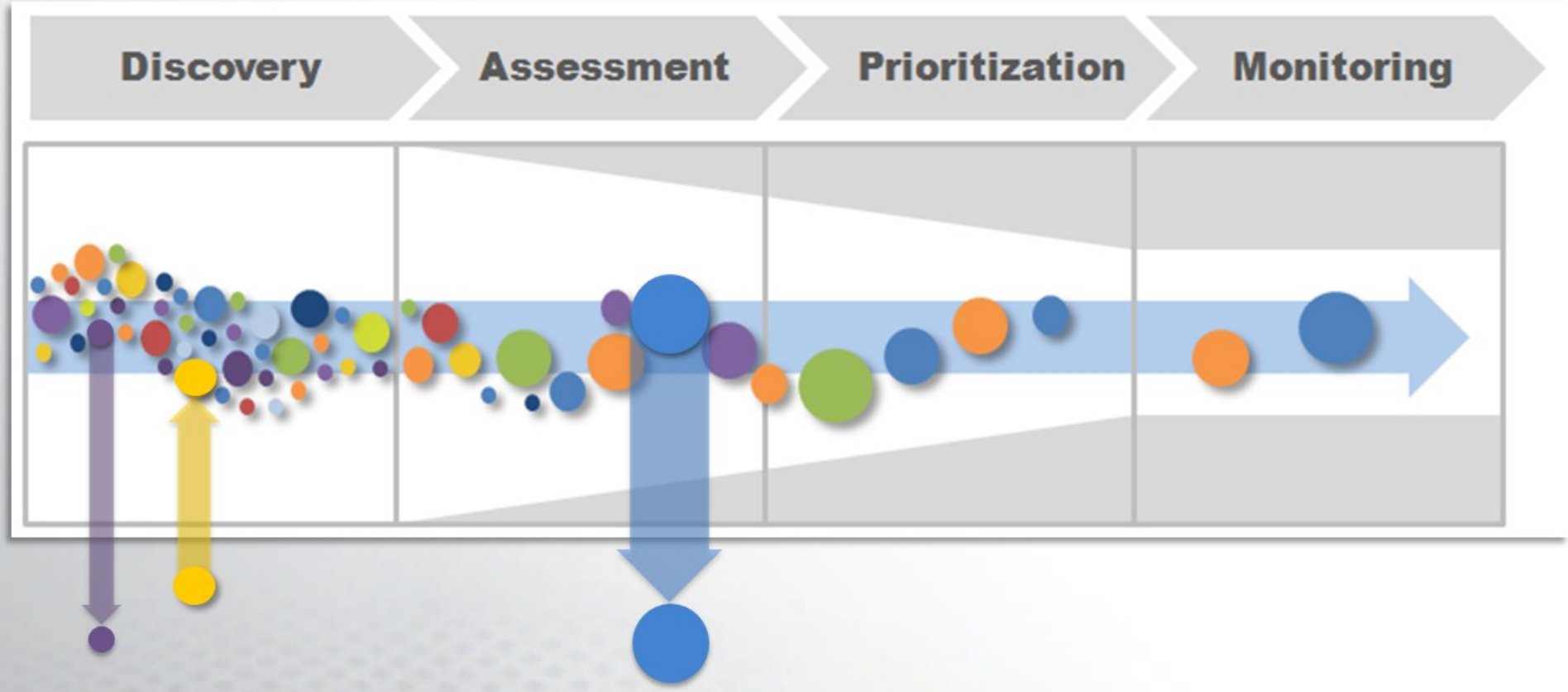
Approach: Identifying the Gap



Approach: Identifying the Gap



Approach:
Balanced Technology Portfolio



Maritime Energy Portfolio Process

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Approach:
Capability Based Concept Development

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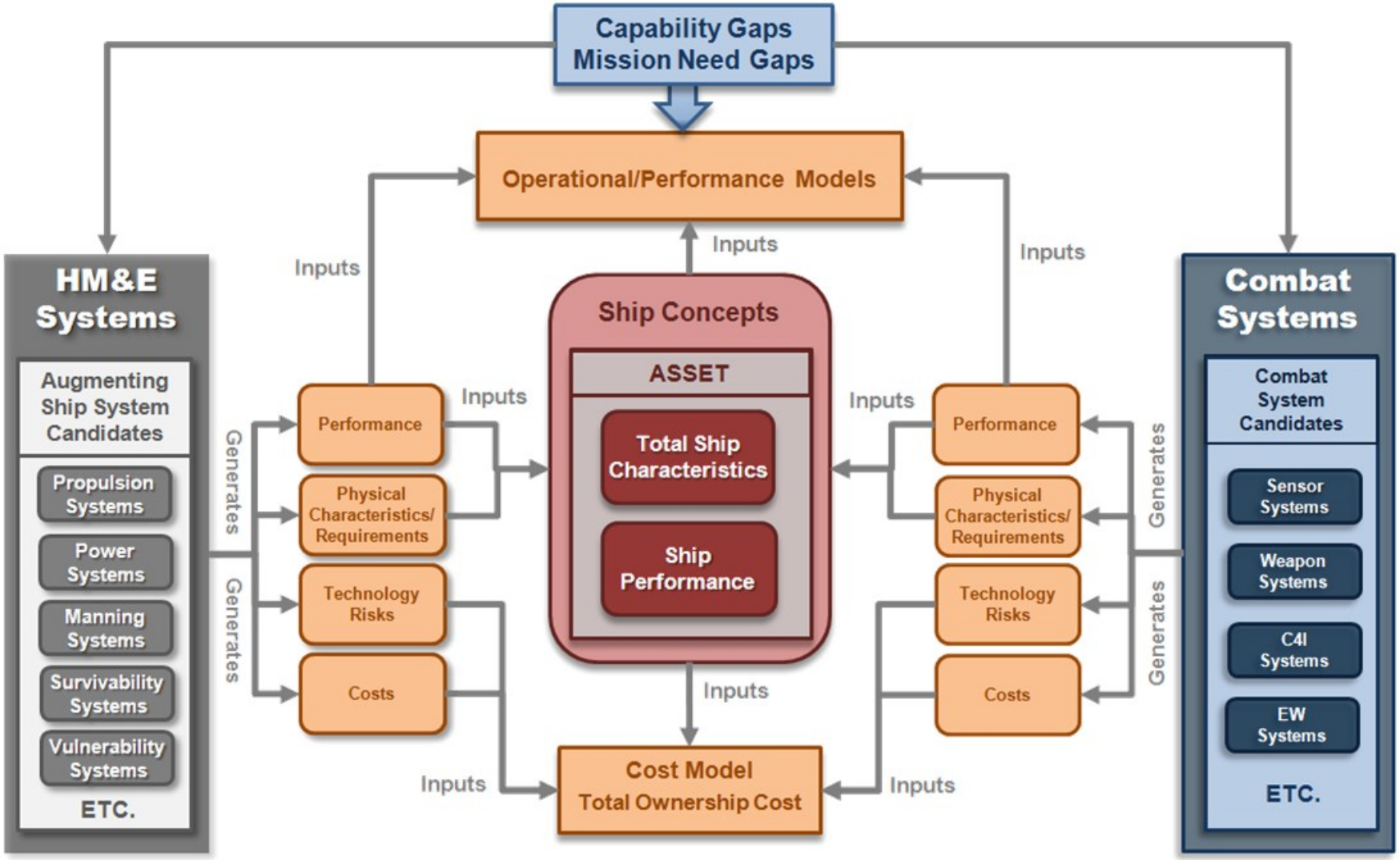
Define a portfolio of concept alternatives that fulfill current and future mission and capability gaps, meet the needs, requirements, and acquisition cost goals

Establish traceable linkages and direct relationships between mission effectiveness/performance associated with individual ship concepts, technology risks, acquisition cost, and total ownership cost

"…resource management decisions on future investment alternatives should focus on capability-based requirements assessed through a cost benefit analysis structure." OPNAV Ser 814/638503, 03 Dec 2003

HM&E Roadmap Approach: Capability Based Concept Development



Approach:
Accelerating the Transformation

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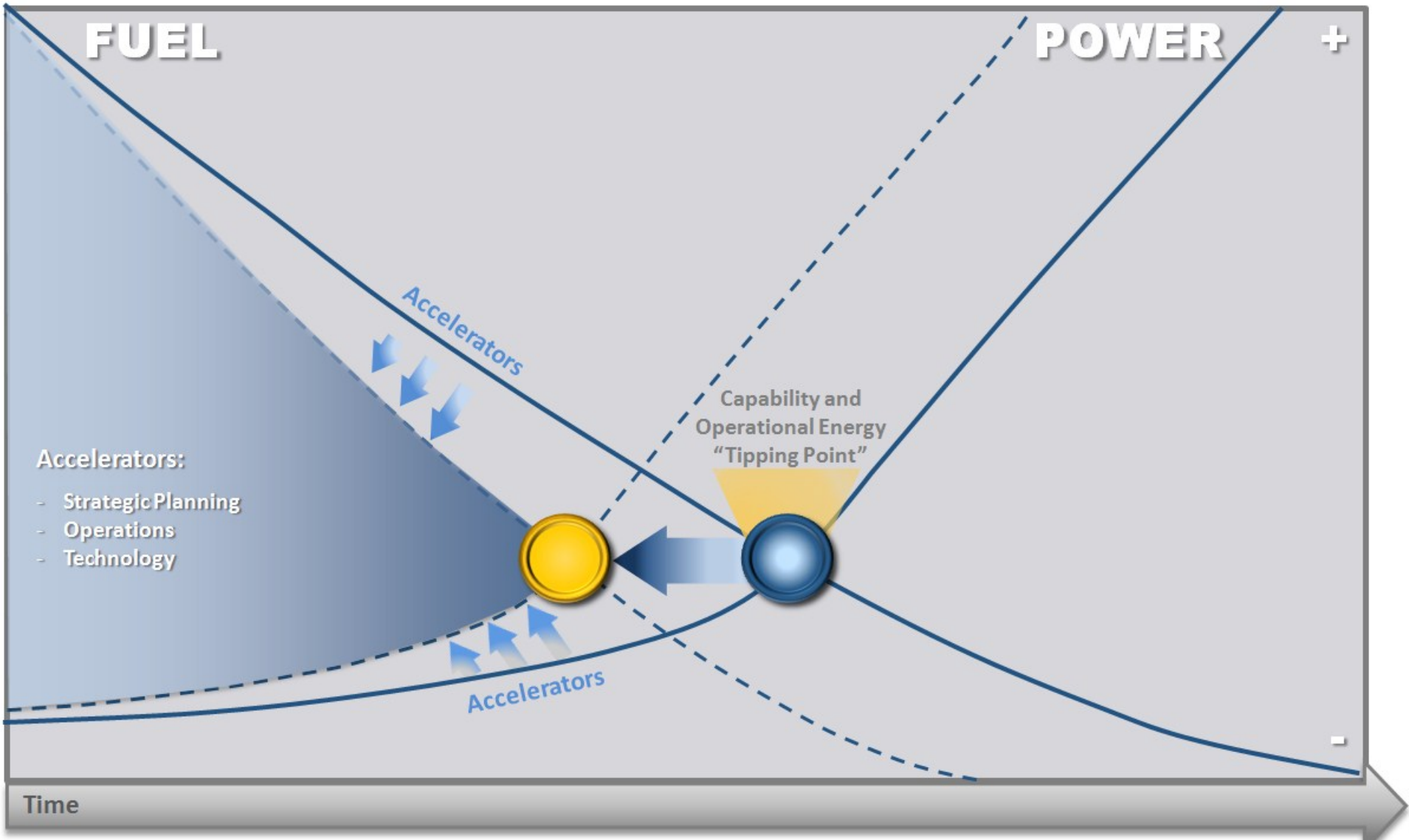
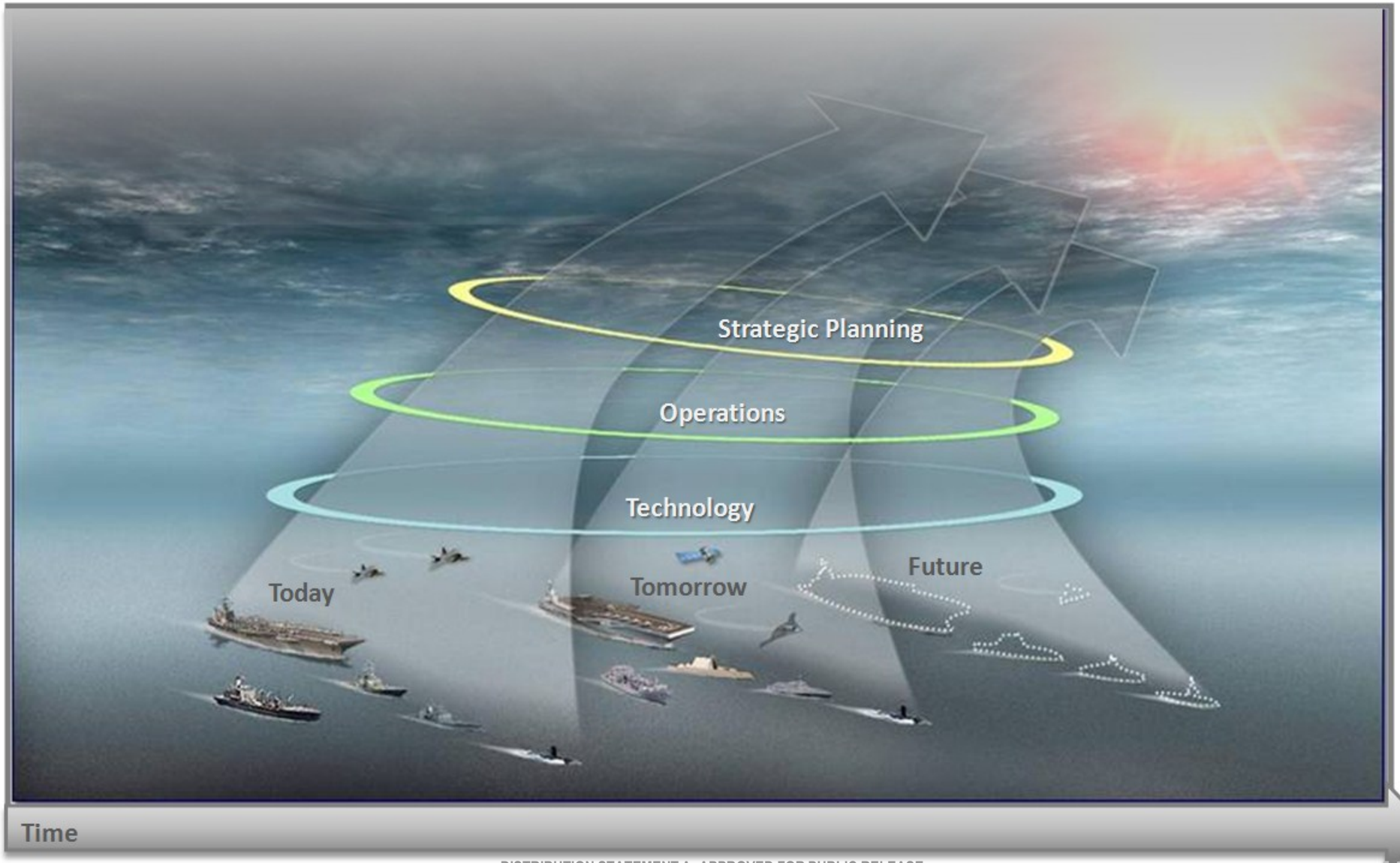


Approach:
Moving Toward an Energy Secure Fleet



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HM&E Roadmap… what it means

- Communicating the Vision from top to bottom
- Integrating S&T focus with shipbuilding plans
- Identifying gaps and focus areas
- Identifying areas of synergy for common investment
- Linkages to program needs and milestones
- Leverage enterprise-wide partnerships
- Sharing knowledge across teams

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